CHAPTER 4.0
DESCRIPTION OF THE AFFECTED ENVIRONMENT

This description of the affected environment for the proposed project is based on the Final Environmental Impact Report (Final EIR),[1] literature review,[2,3] archive and records search, site reconnaissance, directed surveys for federally listed species[4] undertaken on February 12 and 14, and March 18 through May 3, 2002, and May 5 to 14, 2003, and consultations with agency representatives and other recognized experts.

4.1 PROPOSED PROJECT

4.1.1 Location

The proposed project site is located approximately 60 miles southeast of downtown Bakersfield, approximately 9 miles east of the community of Mojave, and within the southern-most limits of the City of California City (City) (Figure 4.1.1-1, *Regional Vicinity*). Hyundai proposes to construct an automotive test course facility on a 4,340-acre site, located in southeastern Kern County (Figure 4.1.1-2, *Project Location*). The site is currently accessible from State Highway 58 via an unsigned street that exits north off State Highway 58 approximately 9 miles east of the town of Mojave adjacent to an AT&T radio tower facility. Several existing dirt roads provide access to the interior of the site. The site has a City General Plan Designation of Light Industrial and Research and is zoned M-1-Light Industrial District, which allows an automotive test course facility. The proposed project site is depicted on the USGS 7.5-minute series Sanborn, California topographic quadrangle[5] within Township 11 North, Range 11 West, Sections 9, 10, 11, 14, 15, 16, and portions of Sections 22, 23, and 24 (Figure 4.1.1-3, *Topographic Map)*.

[1] City of California City, 4 October 2002. Final EIR: Redevelopment Area Expansion, Detachment, Annexation, and Automotive Test Course Project, California City. Contact: 21000 Hacienda Boulevard, California City, CA 92505. Prepared by: Sapphos Environmental, Inc.,133 Martin Alley, Pasadena, CA 91105.

[2] Jones and Stokes and Associates, 20 August 1997. Results of Biological Surveys of Lands for Bureau of Land Management and SF Pacific Properties, Inc. Land Exchange. Contact: SF Pacific Properties, Inc. 304 South Broadway, 4th Floor, Los Angeles, CA 90013.

[3] AMEC Earth & Environmental, Inc., November 2001. Baseline Biological Resources Review for a Project Near California City, California. Contact: Wateridge Capital Group, LLC., 221 Town Center West, Suite 106, Santa Maria, CA 93458. Prepared by: AMEC Earth & Environmental, Inc., 1 East Anapamu Street, Santa Barbara, CA 93101.

[4] City of California City, 2002b. MFR: Results of Directed Surveys for Desert Tortoise within the Proposed Automotive Test Course Project Area, Kern County, California. Contact: 21000 Hacienda Blvd., California City, CA 93505. Prepared by: Sapphos Environmental, Inc., 133 Martin Alley, Pasadena, CA 91105.

[5] U.S. Geological Survey, 1973. USGS 7.5-minute series Sanborn, CA topographic quadrangle. Denver, CO.

4.1.2 Existing Conditions

4.1.2.1 Aesthetics

The existing visual character of the proposed project site is defined by vacant land that supports native desert plant communities. The site has been partially degraded by past and current agricultural uses, mineral extraction, and military and utility activities. These activities have left graded gravel and dirt roadways on site. There are no designated scenic vistas in the proposed project site area. There are no state-designated scenic highways passing through or adjacent to the proposed project site. Existing sources of light and glare include urban and residential lighting in the Civic Center in downtown California City to the north, Edwards Air Force Base to the east, street lighting (at intersections) and vehicular traffic along State Route 58 to the south, and State Route 14 to the west.

4.1.2.2 Air Quality

The analysis of existing conditions related to air quality includes a summary of pollutant levels prior to implementation of each component of the proposed project. All of the project components are located within the Mojave Desert Air Basin and all air quality data and analysis are presented as an aggregate of the entire project area.

The Kern County Air Pollution Control District (KCAPCD) is responsible for monitoring air quality in the Kern County portion of the Mojave Desert Air Basin and for adopting controls in conjunction with the California Air Resources Board (CARB) to improve air quality. The Mojave Desert Air Basin is in attainment for all Environmental Protection Agency (EPA) air quality criteria pollutants except ozone and PM_{10}.[6] The Basin's climate is hot in the summer and cold in the winter compared to the coastal basins where the climate is moderated by the adjacent ocean. Rainfall is light, averaging about 5 inches per year in Mojave. Most of the air basin is sparsely populated and produces little air pollution. Prevailing winds are from the south and west, and rapid daytime heating of the lower air leads to convective activity (mixing of lower and upper air masses). Although separated by mountains from the much more heavily populated San Joaquin Valley and the South Coast air basins, prevailing winds provide sufficient transport through passes such as the Tehachapi Pass to cause occasional exceedance of the state ozone standard. Readings for ozone and PM_{10} applicable to the proposed project were taken at the KCAPCD's Mojave air monitoring station (Figure 4.1.2.2-1, *Air Quality Monitoring Station Location*). Readings for the past five years, together with the applicable state and national standards, are shown in Table 4.1.2.2-1, *Summary of Air Quality Data Mojave (Poole Street) Air Monitoring Station*.

[6] The subscript number associated with the acronym "PM" indicates the minimum diameter, in microns, of the particulate matter.

TABLE 4.1.2.2-1
SUMMARY OF AIR QUALITY DATA
MOJAVE (POOLE STREET) AIR MONITORING STATION

Pollutant Standards	1997	1998	1999	2000	2001
Ozone (O_3)					
State standard (1-hr. avg. 0.09 ppm)					
National standard (1-hr avg. 0.12 ppm)					
National standard (8-hr avg 0.08 ppm)					
Maximum 1-hr concentration (in ppm)	0.119	0.134	0.119	0.113	0.119
Maximum 8-hr concentration (in ppm)	0.096	0.117	0.100	0.095	0.101
Number of days state standard exceeded	22	43	39	25	13
Number of days national 1-hr standard exceeded	0	2	0	0	0
Number of days national 8-hr standard exceeded	19	40	34	15	15
Suspended Particulates (PM_{10})					
State standard (24-hr avg. 50 mg/m^3)					
National standard (24-hr avg. 150 mg/m^3)					
Maximum 24-hr concentration	130	41	45	44	43
Samples exceeding state standard	1	0	0	0	0
Samples exceeding national standard	0	0	0	0	0
Suspended Particulates ($PM_{2.5}$)					
National standard (24-hr avg. 65 mg/m^3)					
Maximum 24-hr concentration	NM	NM	27.6	28.7	15.3
Samples exceeding national standard			0	0	0

NOTE:
avg. = average
ppm = parts per million
mg/m^3 = micrograms per cubic meter
NM = Not Monitored
SOURCE: California Air Resources Board –1997 through 2001.[7]

The national 1-hour ozone standard is rarely exceeded at the KCAPCD's Mojave air monitoring station. Data indicate that the number of days that the national 8-hour ozone standard would be exceeded is similar to the number of days that the state 1-hour standard is exceeded in every year but 2000.[8] Because PM_{10} and $PM_{2.5}$ samples are only taken every six days, the data may not be fully indicative of the highest PM readings in the area. Nevertheless, it does appear that all of the particulate standards may be attained since there has been only one reading where any of the standards-- the state PM_{10} standard--was exceeded in the past five years.

[7] California Air Resources Board, 2 February 2002. "Air Quality Data Statistics." Available at: http://www.arb.ca.gov/adam/welcome.html.

[8] Ibid.

4.1.2.3 Biological Resources

Biological resources at the proposed project site were evaluated through a search of the California Natural Diversity Database (CNDDB)[9] for the USGS 7.5-minute series topographic quadrangles (Sanborn)[10] and all adjacent 7.5-minute topographic quadrangles, including Mohave NE, Cache Peak, Mojave, California City South, California City North, Edwards, Bissell, and Soledad Mountain; a review of published literature, unpublished reports,[11,12] coordination with USFWS,[13] consultation with persons knowledgeable about the biological resources of the area, and directed field surveys.[14,15]

The vegetation communities within the proposed project site were determined and mapped to assess the presence of potentially suitable habitats for those federally listed plant and wildlife species identified on the CNDDB as having the potential to occur within the vicinity of the proposed project. The potential for federally listed plant and wildlife species to occur within the proposed project site was then analyzed based on the location of the proposed project, the vegetation communities present, and whether required habitat elements for the listed species being considered were available within the proposed project site.

A review of the National Wetland Inventory Map for the USGS 7.5-minute series Sanborn, California topographic quadrangle[16] was performed to determine the potential presence of wetlands, intermittent stream courses, or other features that may be subject to U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act.

4.1.2.3.1 Plant Communities

The proposed project site supports three common Mojave Desert plant communities: desert saltbush scrub, Mojave creosote bush scrub, and Joshua tree woodland (Figure 4.1.2.3.1-1, *Plant Community Map*). Mojave creosote bush scrub is the dominant plant community within the area, as determined by literature review; archive and records search; a review of the following U.S.G.S. 7.5-minute

[9] California Department of Fish and Game, 2002. *Rarefind 2: A Database Application for the California Natural Diversity Database*. Sacramento, CA.

[10] U.S. Geological Survey, 1973. USGS 7.5-minute series Sanborn, CA topographic quadrangle. Denver, CO.

[11] AMEC Earth & Environmental, Inc., 2001.

[12] Jones and Stokes and Associates, 1997.

[13] George Walker, *Personal Communication*, 14 February 2002. United States Fish and Wildlife Service.

[14] City of California City, 2002b.

[15] U.S. Fish and Wildlife Service, January 1992. Field Survey Protocol for any Non-Federal Action That May Occur Within the Range of the Desert Tortoise.

[16] U.S. Fish and Wildlife Service, 1986. USGS 7.5-minute series Sanborn, CA, National Wetland Inventory Map.

topographic quadrangle maps: Galileo Hill, Saltdale, California City North, and Cantil; and the Desert Tortoise (Mojave Population) Recovery Plan. This description of the vegetation at the proposed project site is based on field surveys and a query of the CNDDB[17] for the potential presence of state-designated sensitive habitats. Additional information may be found in Appendix C, *Results of Directed Surveys for Desert Tortoise*, which provides further analysis of the area. A plant community is defined as a regional element of vegetation characterized by the presence of certain dominant species.[18] The plant communities present on the proposed project site are described in accordance with the *Preliminary Descriptions of the Terrestrial Natural Communities of California*[19] and *A Manual of California Vegetation*.[20]

Plant communities were mapped in the field onto a topographic map (scale: 1 inch = 600 feet) of the proposed project site. Preliminary plant community boundaries were assessed in the field while conducting directed surveys for desert tortoise on March 18 through March 22, 2002 by Sapphos Environmental, Inc. (B. Blood, B. Baker, M. Helton, C. Watson, M. Ross, D. Bise, and M. McGovern). Plant community boundaries mapped in the field were transferred to an aerial photograph (scale: 1 inch = 400 feet). This preliminary plant community map was ground truthed in the field by Sapphos Environmental, Inc. on April 15 through April 19, 2002. Dominant shrubs were identified during field surveys to the lowest possible taxonomic category. All plant species observed were identified to the lowest possible taxonomic category either in the field or by the use of a dichotomous vegetation key upon return to the office.[21]

The distribution of plant species observed during the course of field surveys within the proposed project area was relatively homogeneous and included Mojave aster (*Xylorhiza tortifolia* var. *tortifolia*), flat-topped buckwheat (*Eriogonum deflexum*), birdnest buckwheat (*Eriogonum nidularium*), prince's plume (*Stanleya pinnata*), Mormon tea (*Ephedra nevadensis*), burrobrush (*Hymenoclea salsola*), fiddleneck (*Amsinckia tessellata*), Mediterranean grass (*Schismus arabicus*), desert trumpet (*Eriogonum inflatum*), cholla (*Opuntia* sp., most likely *echinocarpa*; however, due to the ease with which golden cholla hybridizes with most co-occurring chollas, it is possible that this specimen is a hybridized *Opuntia echinocarpa*), cryptantha (*Cryptantha micrantha*), California buckwheat (*Eriogonum fasciculatum*), yellow pepper grass (*Lepidium flavum*), blazing star (*Mentzelia* sp.), goldfields (*Lasthenia* sp.), wild rhubarb (*Rumex hymenosepalus*), saltgrass (*Distichlis spicata*), horsebush (*Tetradymia stenolepis*), creosote bush (*Larrea tridentata*), Joshua tree (*Yucca brevifolia*), four-wing saltbush (*Atriplex canescens*), saltbush (*Atriplex polycarpa*), Russian thistle (*Salsola tragus*), thistle sage (*Salvia carduacea*), Mojave woolly-star (*Eriastrum densifolium* ssp.

[17] California Department of Fish and Game, 2002. *RareFind 2: A Database Application for the Use of the California Natural Diversity Database*. Sacramento, CA.

[18] P. A. Munz and D.D. Keck, 1949. "California Plant Communities." *El Aliso* 2(1): 87-105.

[19] R.F. Holland, 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game, Sacramento, CA.

[20] John O. Sawyer and Todd Keeler-Wolf, 1995. *A Manual of California Vegetation*. Sacramento, CA: California Native Plant Society.

[21] Hickman (ed.), 1993. *The Jepsom Manual*. University of California Press, Berkeley and Los Angeles, California.

mohavense), winter fat (*Kraschenninnikovia lanata*), storksbill (*Erodium* sp.), Indian rice grass (*Achnatherum hymenoides*), hopsage (*Grayia spinosa*), spiny boxthorn (*Lycium cooperi*), rabbit brush (*Chrysothamnus nauseosus*), and cheese weed (*Malva* sp.).

Desert Saltbush Scrub

Desert saltbush scrub is the primary plant community, accounting for 2,019 acres (approximately 46 percent) of the proposed project site. Characteristic plant species of the desert saltbush scrub plant community that were identified in the proposed project site include saltbush, hop-sage, burrobrush, California buckwheat Mormon tea, and saltgrass.

The desert saltbush scrub plant community (Element Code 36110)[22] corresponds to the hop-sage series[23] and is characteristic of bajadas and alluvial outwash plains in the Mojave Desert. Desert saltbush scrub is not a state-designated sensitive plant community. This plant community is usually characterized by low, grayish, and microphyllous shrubs of 0.3 to 1 meter in height, with some succulent species. Plants are widely spaced with bare ground between, and stands are typically dominated by a single species of saltbush. Characteristic species of this community include saltbush, hop-sage, burrobrush, musty molly *(Kochia californica),* desert thorn, honey mesquite *(Prosopis glandulosa),* and seepweed *(Suaeda occidentalis)*.

Mojave Creosote Bush Scrub

Mojave creosote bush scrub is a secondary plant community, accounting for 1,927 acres (approximately 44 percent) of the proposed project site. Plant species identified on site that are representative of the Mojave creosote bush scrub community include creosote, burro-weed, burrobrush, cholla (*Opuntia* sp.), hopsage, Mormon tea, and saltbush.

The Mojave creosote bush scrub plant community (Element Code 34100)[24] corresponds to the creosote bush series.[25] Mojave creosote bush scrub is the dominant plant in the Mojave Desert at elevations below 3,000 to 4,000 feet. Mojave creosote bush scrub is not a state-designated sensitive plant community. This plant community is normally characterized by shrubs of usually 0.5 to 3 meters in height and widely spaced with bare ground between plants. It occurs in areas of well-drained secondary soils on slopes, fans, and valleys. It is typically dominated by creosote and is characterized by white bursage *(Ambrosia dumosa),* spiny senna (*Cassia armata),* Mormon tea, and burrobrush.

[22] Holland, 1986.

[23] Sawyer and Keeler-Wolf, 1995.

[24] Holland, 1986.

[25] Sawyer and Keeler-Wolf, 1995.

Joshua Tree Woodland

Joshua tree woodland is a secondary plant community, accounting for 332 acres (approximately 8 percent) of the proposed project site. Characteristic plant species of the Joshua tree woodland plant community that were identified within the proposed project site include Joshua tree, Mormon tea, California buckwheat, creosote, spiny boxthorn, and rabbit brush.

The Joshua tree woodland plant community (Element Code 73000)[26] corresponds to the Joshua tree series[27] and is characteristic of well drained gentle alluvial slopes in the Mojave Desert, typically at elevations between 2,500 and 5,000 feet. Joshua tree woodland is a CDFG state-designated sensitive plant community, but is not a listed plant species under the ESA or CESA. Joshua tree woodland is a community of open woodland with numerous shrub species between 1 and 4 meters in height. During most of the year, little or no understory is present. Stands are dominated by numerous species including sclerophyllous evergreen trees and shrubs *(Yucca* sp.*)*, microphyllous evergreen shrubs *(Juniperus* sp.*)*, semideciduous shrubs *(Eriogonum* sp.*, Tetradymia* sp.*)*, semisucculents *(Lycium* sp.*)*, and succulents *(Opuntia* sp.*)*. Other characteristic species include hopsage, creosote bush, desert needlegrass (*Achnatherum speciosa),* Mormon tea, menodora (*Menodora spinescens),* and bladdersage (*Salazaria mexicana)*.

Disturbed Areas

A network of dirt roads crosses the property, accounting for 62 acres (approximately 1 percent) of the proposed project site. Field survey observations also documented signs of disturbance by humans, including scattered shotgun shells and bullet casings, trash, abandoned camp sites, abandoned automobiles and sheep grazing. Additionally, signs of historical military uses are found throughout the site, including ammunition casings and at least one aircraft crash site. Representatives of Edwards Air Force Base Explosive Ordinance Disposal Unit performed a site assessment on September 12, 2002, and determined that all ordnance observed by the unit were "dummy" rounds used for targeting and contained no explosives. Therefore, there are no anticipated impacts to biological resources from unexploded ordnance.

4.1.2.3.2 Threatened and Endangered Species

Plants

The CNDDB[28] review did not identify any federally listed plant species with the potential to occur within the proposed project site.[29] Coordination with the USFWS (Mr. Tim Thomas) resulted in the

[26] Holland, 1986.

[27] Sawyer and Keeler-Wolf, 1995.

[28] California Department of Fish and Game, 2002. *Rarefind 2: A Database Application for the Use of the California Natural Diversity Database*. Sacramento, CA.

[29] "Listed species" is defined as threatened or endangered species under the Federal Endangered Species Act.

identification of one potentially occurring federally listed threatened plant species, Hoover's woolly-star (*Eriastrum hooveri)*. Hoover's woolly-star populations currently are found in Fresno, King, San Luis Obispo, and western Kern Counties, with most occurrences in foothill areas. Populations of Hoover's woolly-star occur in alkali sinks, washes, on both north-and south-facing slopes, and on ridgetops. This species occurs in a wide variety of plant communities. Most are characterized by shrubs such as common Saltbbush (*Atriplex polycarpa*), seepweed (*Suaeda moquinii*), and matchweed (*Gutierrezia californica*), but shrub cover in occupied habitats typically is less than 20 percent. Herbaceous plant species frequently found in association with Hoover's woolly-star include red brome (*Bromus madritensis* ssp. *rubens*), goldfields (*Lasthenia* spp.), many-flowered eriastrum (*Eriastrum pluriflorum*), and red-stemmed filaree (*Erodium cicutarium*). Hoover's woolly-star may reinvade disturbed soil surfaces such as well pads and dirt roads within 1 year after the disturbance ceases if seed sources remain in the vicinity. This species may benefit from some soil disturbances in areas that are densely vegetated by exotic plants. Reported elevations for this species range from 50 to 915 meters (164 to 3,002 feet).

There are no known occurrences of Hoover's woolly-star within the immediate vicinity of the proposed project area. Consultation with USFWS (Ms. Judy Hohman) the nearest known population in the Mohave desert is a recently discovered population in the City of Rosamond, approximately 13 miles from the project site.[30] Additionally, an important habitat characteristic required for the germination and growth of Hoover's woolly-star is the presence of open alkali sink habitats, ideally with a cryptogamic crust.[31] There are no alkali sinks on the project site, and vegetative cover is generally greater than 20 percent on much of the site. Biologists conducting 2003 protocol surveys for desert tortoise did not find any evidence of Hoover's woolly-star. Optimal habitats for this species are characterized by stabilized silty to sandy soils, a low cover of competing herbaceous vegetation, and the presence of cryptogamic crust (a layer of moss, lichen, and algae). However, Hoover's woolly-star also has been found on loamy soils, in areas of dense vegetation, and in areas lacking cryptogamic crust. The plant was not found during 2003 desert tortoise surveys of the project site. The 2003 survey took place after a winter of normal rainfall for this portion of the desert and a normal bloom of desert annual plants, therefore it is considered unlikely that the Hoover's woolly star occurs on the site.

Wildlife

Based on reconnaissance surveys,[3233] a query of the CNDDB,[34] coordination with resource agencies, and a review of other references with location data for sensitive species in the vicinity of the proposed project site, one federally listed wildlife species (desert tortoise) and one state-listed wildlife species (Mohave ground squirrel) have the potential to occur within the proposed project

[30] Russ Lewis, *Personal Communication*, 18 September 2002. Bureau of Land Management, Bakersfield, CA.

[31] Judy Hohman, *Personal Communication,* 28 May 2003. United States Fish and Wildlife Service, Ventura, CA.

[32] AMEC Earth & Environmental, Inc., November 2001.

[33] Jones and Stokes and Associates, 1997.

[34] CDFG, 2002.

area. The proposed project site was also determined to support suitable habitat for the desert tortoise and Mohave ground squirrel (Table 4.1.2.3.2-1, *Listed Wildlife Species with the Potential to Occur in the Vicinity of the Proposed Project*).

TABLE 4.1.2.3.2-1
LISTED WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR IN THE VICINITY OF THE PROPOSED PROJECT

Species /Status	Habitat Requirements
Desert Tortoise *(Gopherus agassizii)*	
FT, ST	The desert tortoise can be found primarily within creosote bush scrub vegetation, but also in succulent scrub, cheesebush scrub, blackbush scrub, hop-sage scrub, shadscale scrub, microphyll woodland, and Mojave saltbush-allscale scrub. Tortoises eat primarily annual forbs, but also perennials (e.g., cacti and grasses). They prefer surfaces covered with sand and fine gravel versus course gravel, pebbles, and desert pavement. Friable soil is important for digging burrows.
Mohave Ground Squirrel (*Spermohilus mohavensis*)	
ST	The Mohave ground squirrel occupies all major desert scrub habitats in the western Mojave Desert. However, the presence of shrubs that provide reliable forage during drought years may be a critical habitat feature. Mohave ground squirrels feed on a variety of foods, but primarily on the leavesand seeds of forbs and shrubs.

KEY:
FT = Federally listed as threatened according to the federal Endangered Species Act of 1973.
ST = State listed as threatened according to the state Endangered Species Act.

Desert Tortoise

Directed surveys for the desert tortoise were undertaken by Sapphos Environmental, Inc. (B. Blood, M. Ross, D. Bise, C. Watson, B. Baker, M. Helton, B. Vanherweg, and M. McGovern)(Appendix C).[35] Surveys were conducted on March 18 through April 4, 2002 across all areas of potential project impact (Figure 4.1.2.3.2-1, *2002 Desert Tortoise Survey Area*)**.** Areas within the proposed project and a surrounding buffer area of up to 0.25 mile that were proposed for development were surveyed. The recommended USFWS protocol for desert tortoise surveys was followed with one modification.[36] One-hundred-foot transect intervals were utilized, rather than 30-foot transect intervals,[37] because presence of desert tortoise had been determined by an earlier survey[38] and the

[35] City of California City, 2002b.

[36] Thomas Egan, 1999. Memorandum. Subject: Desert tortoises and the Bureau of Land Management, a biological consultant's guide; Endangered species act compliance, biological survey protocol, and biological assessment format. Contact: Bureau of Land Management, Barstow Resource Area, Barstow, CA.

[37] U.S. Fish and Wildlife Service, January 1992. "Field Survey Protocol for any Non-Federal Action That May Occur Within the Range of the Desert Tortoise."

[38] AMEC Earth & Environmental, Inc., November 2001.

goal of this survey was to assess the extent of utilization of the proposed project site by desert tortoise. The 100-foot transect survey method allowed the assessment of desert tortoise utilization and potential presence to be determined throughout the survey area and was approved by USFWS during a meeting on February 14, 2002. Of the 4,340-acre site, approximately 2,500 acres (approximately 57 percent) were surveyed for desert tortoise. As a result of directed surveys,[39] it was determined that desert tortoise occupy the entire proposed project site.

Surveys were undertaken within all plant communities present in the study area. All observed desert tortoise and diagnostic signs were recorded, flagged, and the location recorded using a hand-held GPS unit. Field notes recorded specifications for burrows, carcasses, and live tortoises following classifications provided by the desert tortoise field survey forum. Observations made during surveys included signs of human disturbance, Common Ravens, and other species of wildlife. Desert tortoise survey forms were completed. During surveys, weather conditions were mild and calm with clear skies, with temperatures ranging from 45° F to 87° F. The proposed site for the City's water pipeline extension was assessed for desert tortoise habitat on September 7, 2002 (Figure 4.1.2.3.2-1).

Two live desert tortoises were observed during directed surveys; additionally, a third observation of a live desert tortoise was made on April 4, 2002, during the performance of Mohave ground squirrel surveys (Figure 4.1.2.3.2-2, *2002 Desert Tortoise Survey Results*). All observed tortoises seemed healthy. Two Class 1,[40] 8 Class 2,[41] 10 Class 3,[42] 86 Class 4,[43] and 84 Class 5[44] burrows were observed and mapped during directed surveys, and 11 carcasses of dead tortoises were also observed during directed surveys (Figure 4.1.2.3.2-2). Carcasses consisted of Class 1, 4, and 5. The age of remains could not be determined; all remains were left where found. Tortoise scat was also observed. A species account for desert tortoise is included as Appendix D, *Species Accounts for Hoover's Woolly-Star and Desert Tortoise*.

The habitat assessment performed along the Highway 58 access road route and the City's water pipeline extension route determined that these areas support potentially suitable desert tortoise habitat.

An additional survey for desert tortoise on the proposed project site was performed in May 2003, at the request of the USFWS and CDFG, by Mr. William Vanherweg (Appendix B, *2003 Desert Tortoise Survey Report*). USFWS protocol for performance of desert tortoise surveys was used in surveying all areas proposed for development, including the oval track and its interior, roads, and

[39] City of California City, 2002b.

[40] Class 1, currently active, with tortoise or recent tortoise sign.

[41] Class 2, good condition, definitely tortoise; evidence of recent use.

[42] Class 3, deteriorated condition; definitely tortoise.

[43] Class 4, deteriorated condition; possibly tortoise.

[44] Class 5, good condition; possibly tortoise.

the water pipeline. A total of 2,898.7 acres were surveyed. All areas were surveyed following line transects spaced at 30 foot intervals or less depending on visibility. The survey was conducted May 5 through May 14, 2003. The survey team consisted of 14 experienced biologists (C. Bjurlin, C. Halley, T. Rado, J. Dockins, J. Jennings, M. Vaughn, R. Eisenbart, E. LaRue, J. Weir, G. Goodlett, M. Luhrs, P. Wood, G. Goodlett, and M. McGovern), and led by Mr. Steve Boland, with Mr. Vanherweg as the survey coordinator.

Most of the live desert tortoises and active sign observed during the spring 2003 desert tortoise survey were found in the west half of the test track property (Figure 4.1.2.3.2-3, *2003 Desert Tortoise Survey Results*). The primary soil type in this area is Cajon-Garlock sands.[45] This soil type is very deep and derived from granitic rock. Perennial vegetation is composed of creosote bush and white bursage on the Garlock portions with a more diverse shrub component including spiny hopsage, winterfat and Indian ricegrass occurring on the Cajon portions.[46] Estimated total annual forage production on this unit of soil ranges from 150 lbs/ac in dry years to 400 lbs/ac in wet years.[47]

A large portion of the eastern half of the project area is dominated by DeStazo sandy loam and soil. This soil type is dominated by alkaline-tolerant shrubs like saltbush and spiny hopsage and produces only 75 lbs of forage per acre in dry years and 150 lbs. in wet years (USDA 1981). Many of the older tortoise carcasses and very little active sign was found in the vicinity of this soil type. Herbivores, like desert tortoise, living on this soil unit would be more severely affected by prolonged drought than those living on more productive soils. The remainder of the flat portion of the project area in the east half contains Cajon loamy sand (USDA 1981). Cajon loamy sand soil is similar to the Cajon-Garlock sand soils in vegetation, forage production and soil properties.

The hillside portion in the southeast corner of the property has very shallow Muroc-Randsburg sandy loam soil. Although this soil has reasonable forage production of 150-300 lbs/ac, it has limited effective rooting depths of 8-20 inches (USDA 1981). That shallow depth would make it difficult for tortoises to dig very substantial burrows which probably accounts for the low amount of tortoise sign encountered along the linear facilities in this portion of the project area.

During the survey, GPS recordings were made of all desert tortoise sign, including live and dead tortoise, burrows, and scat, Table 4.1.2.3.2-2, *2003 Desert Tortoise Survey Results*. The survey resulted in the following observations: 8 live tortoises, 43 tortoise carcasses, 18 active burrows, 57 burrows classed as "good, inactive", and 54 "poor inactive" burrows. Desert tortoise sign was observed across the entire oval track. Observations also included other plant and wildlife species observed.

[45] USDA, 1981. *Soil Survey of Kern County Southeastern Part.* United States Department of Agriculture, Soil Conservation Service, in cooperation with University of California, Agricultural Experiment Station. 195 pp.

[46] Ibid.

[47] Ibid.

The proposed project site currently is classified by BLM as Category III desert tortoise habitat,[48] which is defined as habitat that is not essential to maintenance of viable populations, contains low to medium tortoise population densities, is not contiguous with medium- or high-density tortoise areas and has a stable or decreasing population.[49]

TABLE 4.1.2.3.2-2
2003 DESERT TORTOISE SURVEY RESULTS

Details	Tortoise Sign Count						
	Track	Off-Track	Road	Waterline	Building	Subtotal	Total
Tortoise							
Female	2					2	8
Male	5					5	
Unknown		1				1	
Carcass							
< 1 year since death	3	3				6	43
1-2 years since death	3					3	
> 2 years since death	26	5	3			34	
Burrow							
Active	15	3				18	160
Good inactive	31	24	2			57	
Fair inactive	40	14				54	
Poor inactive	9	17	2			28	
Pallet	2	1				3	
Scat							
This year	225	41	6			272	461
Not this year	97	73	6			176	
Unknown	11	2				13	
Total sign count	**469**	**184**	**19**				**672**

SOURCE: William J. Vanherweg

Mohave Ground Squirrel

Directed surveys were performed by Sapphos Environmental, Inc. (Mr. William Vanherweg, Dr. Brad Blood, Mr. David Bise, and Ms. Melissa Ross). All survey sessions were conducted by Mr. William Vanherweg, who holds a Memorandum of Understanding (MOU) from CDFG to perform surveys for Mohave ground squirrel. Mr. Vanherweg was assisted by two additional biologists who worked directly under Mr. Vanherweg's supervision. Directed surveys for Mohave ground squirrel followed the protocol established by CDFG.[50]

[48] Bureau of Land Management, 1989. *Map of Categories of Habitat for the Desert Tortoise*. Riverside, CA.

[49] Bureau of Land Management, 1992. *California Statewide Desert Tortoise Management Policy*. Bureau of Land Management, Barstow, CA; and California Department of Fish and Game, Region 4, Fresno, CA; and Region 5, San Diego, CA.

[50] California Department of Fish and Game, 1989. *Mohave Ground Squirrel Guidelines*. Contact: 1416 Ninth Street, Sacramento, CA 95814.

Six survey grids were established across the breadth of the proposed project (Figure 4.1.2.3.2-4, *Mohave Ground Squirrel Survey Area Map*). Grid sites were chosen so as to sample portions of those areas mapped as part of the project footprint. Each survey grid consisted of 100 15-inch Sherman live traps deployed in 4 lines of 25 traps each. Traps were spaced 25 meters apart. Traps were covered with a cardboard shade and oriented so that the traps' opening faced north. Traps were opened at 8:00 a.m. daily for five consecutive days. Traps were checked at least twice daily and closed each day starting at 4:00 p.m., and so were open for at least six consecutive hours.

Three five-day survey sessions were conducted between April 1 and May 3, 2002. Session 1 was performed April 1 to April 5, session 2 was performed April 15 to April 20, and session 3 was conducted April 29 to May 3, 2002. Two survey grids were surveyed during each session. Grids No. 1 and No. 2 were surveyed during session 1, grids No. 3 and No. 4 were surveyed during session 2, and grids No. 5 and No. 6 were surveyed during session 3.

Two Mohave ground squirrels were identified during directed surveys. One individual was observed approximately 100 meters north of Grid 6 (Figure 4.1.2.3.2-5, *Mohave Ground Squirrel Survey Results)*. However, this individual was not captured, and visual identification was made by Mr. Vanherweg. A single male individual was trapped during two consecutive trap checks on a single day. The first capture occurred on April 4, 2002 adjacent to Grid 1. The same individual was captured again on April 4, 2002 later the same afternoon. The captured individual was determined to weigh approximately 170 grams, which indicates near readiness for summer aestivation. This individual was also non-scrotal, indicating it was not engaged in reproductive activity.

The habitat assessment performed along the Highway 58 access road route and the City's water pipeline extension route determined that these areas support potentially suitable habitat for Mohave ground squirrel. No Mohave ground squirrels were observed during the habitat assessment.

4.1.2.3.3 Wetlands and Desert Washes

The National Wetland Inventory map for the USGS 7.5-minute series Sanborn, California topographic quadrangle was reviewed for potential wetland areas and blue-line features. No named or identified blue-line streams are present within the proposed project site. The National Wetlands Inventory Map[51] identified 11 features classified as palustrine, unconsolidated shore, intermittently flooded. These areas vary in size from approximately 100 square feet to 1 acre and appear to be shallow depressions that collect and retain runoff from the surrounding landscape for short periods of time following winter storm events. Observations during field surveys indicate that these areas do not support riparian wetland vegetation.[52]

[51] National Wetlands Inventory Map, August 1986 (Aerial photography, revised 1995). Sanborn, California.

[52] Hyundai Corporation of America, 20 September 2002. *Draft Notification of Lake or Streambed Alteration for Automotive Test Course Facility Project, California City, California*. Prepared by: Sapphos Environmental Inc. 133 Martin Alley, Pasadena, CA 91105. Contact: City of California City, 21000 Hacienda Blvd., California City, CA 92505.

The Corps was notified of desert washes existing onsite and determined that the proposed project area is located in an area that supports several isolated desert wash systems that do not have a substantial interstate commerce connection and therefore are not subject to Corps jurisdiction under Section 404 of the Clean Water Act.[53] The Corps letter dated September 17, 2002, states that the proposed project site does not include any areas subject to Corps jurisdiction.[54]

4.1.2.4 Cultural Resources

The City determined in its *Initial Study*[55] that the proposed project site could have potential impacts to cultural resources and has fully analyzed this issue in its Final EIR. Cultural resources encompass historic, archaeological, and paleontological resources, and human remains of prehistoric or historic origin. The analysis identified suggested measures to avoid, reduce, or otherwise mitigate potential significant impacts to cultural resources.

Setting

The western Mojave Desert was used by various Native American groups during the prehistoric period approximately 13,000 years to 7,000 years ago, and was bisected by a major cultural and linguistic boundary. This boundary extended from the western foothills of the Tehachapi Mountains across the desert to Twentynine Palms. Takic speaking Native American groups inhabited the area south of the boundary, and Numic speaking Native American groups were located in the north. The low-lying desert areas, however, were used in similar ways by both Takic and Numic groups, and were part of a wide range of annual subsistence cycles that also included upland and higher altitude resource areas, although the upland zones were generally considered the core zones of settlement and resource use. Several other groups also lived in the western Mojave Desert or in the surrounding area, including the Kawaiisu, Chemehuevi, Allikik (Tataviam), Kitanemuk, Vanyume, and Serrano. Native settlement and subsistence systems and the demography of the western Mojave Desert were altered drastically as a result of the Spanish missionization of California and later settlement by Euro-Americans.

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[53] Sapphos Environmental, Inc., 14 August 2002 (Letter to Mr. Aaron Allen, Senior Project Manager, United States Army Corps of Engineers). Contact: Mr. Aaron Allen, Sr. Project Manager, U.S. Army Corps of Engineers, 2151 Alessandro Drive, Suite 110, Ventura, CA 93001. Prepared by: Sapphos Environmental, Inc. 133 Martin Alley, Pasadena, CA 91105.

[54] United States Army Corps of Engineers, 17 September 2002 (Letter to Sapphos Environmental, Dr. Brad Blood. Contact: Sapphos Environmental, Inc. 133 Martin Alley, Pasadena, CA 91105). Prepared by: U.S. Army Corps of Engineers, David Castanon, Chief, North Coast Section Regulatory Branch, Ventura Field Office, 2151 Alessandro Drive, Suite 110, Ventura, CA 93001.

[55] California City, 4 April 2002a. *Initial Study : Annexation, Detachment, Sphere of Influence Amendment, Redevelopment Area Expansion, General Plan Update (including the Housing Element), and Automotive Test Course Project, California City*. Contact: 21000 Hacienda Blvd., California City, CA 93505. Prepared by Sapphos Environmental, Inc., 133 Martin Alley, Pasadena, CA 91105.

By the 1830s, Native American communities in the Mojave Desert had become much smaller, fewer in number, and were composed of mixed populations that were highly influenced and disrupted by the Euro-American population influx. However, Euro-American settlement of the Antelope Valley area did not begin in earnest until after the discovery of gold in the 1840s and 1850s, and the bulk of the valley was not settled until the 1870s after establishment of the first rail line.

The earliest recorded western arrival in the Mojave area is documented in the Spanish diary of Captain Pedro Gages during an expedition through the Antelope Valley in 1772. Father Francisco Garces traveled through the region in 1776, accompanied by Mojave Indians acting as guides. In addition, Garces makes reference to the Vanyume tribe occupying a large area of the Antelope Valley. Despite these early travels through the area, most of the Mojave Desert remained mostly out of reach of the Spanish for several decades.

Permanent Euro-American settlement of the area did not begin until after the discovery of gold in California in the 1840's and 1850's. The arrival of the railroad during the 1870's brought about the bulk of Euro-American settlement during the 19th century. During this time, American miners and trappers arrived to the area, which along with the Spanish population, quickly decimated the Native American population of the area. During the 1880s, land in the area became available for homesteading and brought a great influx of Americans from the Midwest and the East Coast. As the area came into the 20th century, the area experienced high and low periods of sporadic bursts of settlement, such as during the 1930's when many families attempted to recover from losing farms in the Midwest as a result of the Stock Market Crash of 1929. Again, settlement in the area increased during the 1950's as a result of the establishment of Edwards Air Force Base (EAFB). Today, much of the Antelope Valley and Mojave Desert population relies heavily on EAFB for employment and owes much to EAFB for its economy.

Methodology

The analysis of cultural resources includes existing conditions of the proposed project area, anticipated impacts, mitigation measures, and level of significance after mitigation. The potential for impacts to cultural resources were analyzed in accordance with the data compiled by ASM Affiliates, Inc.,[56] which included an archival and record search at the Bakersfield Archaeological Information Center, located at California State University Bakersfield. ASM Affiliates, Inc., directed pedestrian transects conducted between May 13 and May 22, 2002, and were performed in accordance with protocols and standards for such surveys.[57]. Sapphos Environmental, Inc. conducted a query of the Buena Vista Museum of Natural History for paleontological resources.

[56] ASM Affiliates, Inc., May 2002c. *Cultural Resources Survey for the Proposed Hyundai Test Track*. Contact: Sapphos Environmental, Inc., 133 Martin Alley, Pasadena, CA 91105. Prepared by ASM Affiliates, Inc., 543 Encinitas Blvd., Suite 114, Encinitas, CA 92024.

[57] Office of Historic Preservation, 12 June 2002. "About OHP." Available at: http://ohp.parks.ca.gov.

Paleontological Resources

The proposed project area is characterized by geologic formations that have a low potential to contain fossils: Quaternary Alluvium (Qal), Dune Sand (Qs), Mesozoic granitic rocks (gr), Pleistocene non-marine (Qc), and Middle or Lower Pliocene marine deposits (Pml) (Figure 4.1.2.5-1, *Regional Geologic Map*). Two types of information were obtained to characterize the existing conditions related to paleontological resources; (1) searches for existing records for paleontological resources within one mile of the boundary of the proposed project site, and (2) searches for known fossils from the geologic formations and rock units mapped within the proposed project site. Records were searched, by a qualified paleontologist, at the Natural History Museum of Los Angeles County, the University of California at Los Angeles, California State University at Bakersfield, and the Kern County Museum.[58] This records search was further augmented by a query of the Buena Vista Natural History Museum for the proposed project area.[59,60]

The Western Mojave Desert province is a Cenozoic feature (65 million years ago to present), probably formed during movement along the San Andreas and Garlock faults. The broad alluvial basins that dominate the region today have been created by eroded materials from adjacent mountain ranges and isolated areas of Mesozoic granitic rocks. Alluvial sediments reach a maximum depth of 4,000 feet in the Antelope Valley, and have been measured at about 1,000 feet in the California City area. [61] The small hills, or buttes, that rise above the alluvial fill are remnants of ancient eroded mountains, and there are a number of playas, or dry lake beds, marking valley portions of the desert floor where imperceptible rises block drainage routes. The near surface deposits in the project area are comprised of a sandy layer which makes these soils susceptible to constant blowing; therefore, the proposed project area is considered to have low sensitivity for yielding scientifically viable paleontological resources.

Archaeological Resources

A records search was conducted to define the existing archeological resources recorded in the project area and to determine if any sites are currently listed on local, state, or national registers. This data was used to assess the percentage of each area that has been previously examined and to make some inferences regarding the type, number, density, distribution, and significance of sites that might occur in remaining areas. The records and archival research was further augmented by Phase I pedestrian transects completed for the Facility in May 2002.

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[58] Cogstone Resource Management Inc., 26 February 2002, *Paleontological Resources Assessment for the Hyundai Test Track Project, Kern County, California*. Contact: 1801 E. Parkcourt Place, D200, Santa Ana, CA. Prepared for Sapphos Environmental, Inc., 133 Martin Alley, Pasadena, CA 91105.

[59] Buena Vista Natural History Museum, 4 June 2002. Available at: http://www.sharktoothhill.com.

[60] John Alderson, *Personal Communication*, 4 June 2002. Associate Curator, Paleontology, Buena Vista Natural History Museum, 2018 Chester Avenue, Bakersfield, CA, 93301.

[61] U.S. Department of Agriculture Natural Resources Conservation Service,1976. *Soil Survey of Kern County California, Southeastern Part*. Contact: California State Office, 430 G Street, #4164, Davis, CA 95616.

The records search was conducted, by a ROPA- certified archeologist meeting the Secretary of Interior's Standards in the field of archeology and having specific knowledge and experience with the Western Mojave Desert. A preliminary records search for the Facility was completed by the Southern San Joaquin Valley Information Center in October 2001. A complete records and archival search for the proposed project area, at the Southern San Joaquin Valley Information Center, California State University Bakersfield, was completed on March 18-19, 2002. All information on previous archaeological studies and previously recorded sites within the proposed project area and an additional one-mile wide buffer was compiled and reviewed (Table 4.1.2.4-1, *Archeological Studies and Previously Recorded Prehistoric Sites*).

There are six previously recorded archeological sites within the area of potential effect (APE) for the proposed Facility. None of these sites is eligible for listing on the California Register of Historical Resources or the National Register of Historic Places. Twenty-six additional archaeological sites were identified within the proposed project site as a result of directed surveys. (*Table 4.1.2.4-2, Newly Recorded Prehistoric Sites within the Proposed Facility Area*). Twenty-five of these archaeological sites were identified as being prehistoric; one site was identified to be of historic origin. It was determined that four of the newly recorded sites do not have the potential to constitute significant archeological or historic resources. Archaeological sites that were identified during the record search are identified in the following Table.

TABLE 4.1.2.4-1
ARCHEOLOGICAL STUDIES AND PREVIOUSLY RECORDED PREHISTORIC SITES

USGS 7.5-Minute Series Topographic Quadrangle/ Township/ Range	Sections	Sites	Comments
Sanborn			
T 11 N, R11W	2 (E½)	KER-5056H KER-5059 20 Isolates	Two sites are located within the proposed Annexation Area: **KER-5056H** consists of a trash dump with domestic debris including 70 pieces of ceramic ware have been exposed to fire in a 1600-m^2 area. The materials appear to date to the 1940s or 1950s. **KER-5059** consists of a small scatter of chalcedony flakes and fire-affected rock in a 120-m^2 area.
	6 (portions)	None	
	10 (S½)	6 Isolates	
	12 (all)	None	
	14 (all)	KER-3951H KER-3952H KER-3953H 5 Isolates	Three sites are located within the proposed Redevelopment Expansion Area, Annexation Area, and Automotive Test Course Facility Site: **KER-3951H** consists of an historic trash scatter that appears to be less than 50 years old. **KER-3952H** consists of an historic trash scatter that appears to be more than 50 years old. **KER-3952H** consists of an historic trash scatter that appears to be more than 50 years old.
	22 (E½)	KER-5053 KER-5054 KER-5055 2 Isolates	Three sites are located within the proposed Redevelopment Expansion Area, Annexation Area, and Automotive Test Course Facility Site: **KER-5053** consists of a scatter of flakes and approximately 30 pieces of fire-affected rock in a 20-m^2 area. Three STPs were excavated. **KER-5054** consists of a scatter of artifacts including a flake, a bifacial core tool, and a metate, with a scatter of 50 or more pieces of fire affected rock in a 140-m^2 area. Six STPs were excavated. **KER-5055** consists of a bedrock milling complex containing at least nine mortars and one slick formed in a granitic exposure an historic trash scatter in a 576-m^2 area

Newly recorded prehistoric archaeological sites, identified during the field survey by ASM Affiliates, Inc., are shown in the following Table.

TABLE 4.1.2.4-2
NEWLY RECORDED PREHISTORIC SITES WITHIN THE PROPOSED FACILITY AREA

USGS 7.5-Minute Series Topographic Quadrangle/Trinomial	Site Type
ASM-1	Lithic Scatter
ASM-3	Small Lithic Scatter
ASM-5	Large Lithic Scatter
ASM-6	Small Lithic Scatter
ASM-7	Small Lithic Scatter
ASM-9	Large FAR Scatter
ASM-10	Small Lithic Scatter
ASM-12	Small FAR Scatter
ASM-13	Small Lithic Scatter
ASM-14	Small FAR Scatter
ASM-15	Small FAR Scatter
ASM-16	Small Lithic Scatter
ASM-17	Small Lithic Scatter
ASM-18	Large FAR Scatter
ASM-19	Small Lithic Scatter
ASM-20	Small Lithic Scatter
ASM-21	FAR Scatter
ASM-22	Lithic Scatter
ASM-23	Lithic Scatter
ASM-24	FAR Scatter
ASM-25	FAR Scatter
ASM-26	FAR Scatter

To ensure that impacts to the remaining 26 newly recorded archaeological sites are minimized to the maximum extent practicable prior to the initiation of construction activities, the Final EIR requires completion of a Phase II cultural resource investigation to make a determination of significance for ASM-1 through -26. Those sites that are determined to be eligible for listing in the National Register of Historic Places or the California Register of Historical Resources will be treated in accordance with one of the three feasible measures described in the "CEQA and Archeological Resources", *CEQA Technical Advice Series*: capping or covering the site with a level of soil prior to construction over the site, incorporation into open space areas of the project site, or excavation where the first two measures are not feasible. These measures also will provide the protection to cultural resources required by Section 106 of the National Historic Preservation Act.

Historic Resources

Historic resources are defined by the Office of Historic Preservation, as those items that are at least 45 years of age or older that represent a significant time, place, origin, event, or work of a master. Historic resources may be identified as structures and as archaeological sites. There are five recorded historic archaeological sites in the proposed project area (Table 4.1.2.4-3, *Historic Sites within the Proposed Project Area)*. The site records for locations of all previously and newly recorded sites for historic resources are mapped on USGS 7.5-minute topographic quadrangle and are on file with the City and available on a "need to know" basis only. The site records have been suppressed to protect extant historic resources from vandalism. It has been determined that all previously identified archaeological sites that occur on-site are not eligible for inclusion under the OHP.[62] No historic structures or features were identified on the proposed project site. The historic archaeological sites are identified in the Table below. ASM-11 is a newly recorded historic archaeological site identified by ASM Affiliates, Inc.

TABLE 4.1.2.4-3
HISTORIC SITES WITHIN THE PROPOSED PROJECT AREA

USGS 7.5-Minute Series Topographic Quadrangle/ Trinomial	Site Type	Automotive Test Course Facility
CA-KER-3951H	Historic shed with an associated trash scatter	√
CA-KER-3952H	Historic trash scatter	√
CA-KER-3953H	Historic trash scatter	√
CA-KER-5056H	Glass & Ceramics	√
ASM-11	Potential WWII Desert Training or Military Disposal Items	√

[62] Widell, Cherilyn, *Personal Communication*, 1997. Office of Historic Preservation..

Native American Sacred Sites

As part of the records and archival investigation, the Native American Heritage Commission was contacted regarding the potential presence of Native American sacred lands or other resources within the proposed project site. The Native American Heritage Commission responded that there are no recorded Native American sacred sites or other resources known in the proposed project site. The Native American Heritage Commission provided a list of local Native American individuals and organizations that may have knowledge of Native American resources within the proposed project area. Letters requesting information were provided to the following points of contact, but no responses were received:

Kern Valley Indian Community
Ron Wermuth, Chairperson
P.O. Box 168
Kenrville, CA 93238

Tehachapi Indian Tribe
Charlie Cook
32835 Santiago Road
Acton, CA 93510

Delia Dominguez
981 North Virginia
Covina, CA 91722
(Representing the Yowlumne and Kianemuk tribes)

Eugene Albitre
3401 Aslin Street
Bakersfield, CA 93312
(Representing the Diegueno tribe)

Dr. Robert Yohe, Coordinator
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, CA 93311

4.1.2.6 Geology and Soils

The proposed project is located within the Antelope Valley portion of the Mojave Desert Geomorphic Province. There are several mapped surface fault zones in this portion of Kern County, the most important of which is the potentially active Garlock Fault Zone located approximately 10 miles to the west and northwest.[63] The topography of the proposed project area consists of a broad, shallow basin characterized by a gently undulating ground surface with isolated buttes and mountain masses with low to moderate relief irregularly distributed across the desert floor. The soil types in the area include the Rosamond-DeStazo series, the Randsburg-Muroc series, and the Garlock-Neuralia series[64] (see Figure 4.1.2.5-1). The proposed project site is not subject to surface fault rupture, seismic-related ground failure (including liquefaction), landslides, or expansive soils. The primary source of natural soil erosion in this area of the Mojave Desert is blowing sand. Vehicular traffic on State Route 58 and the numerous existing paved and dirt roads within the proposed project area contribute to soil erosion through the creation of fugitive dust. Geotechnical testing performed throughout the proposed project area indicates that some of these soils have a mild to moderate potential to collapse with the addition of water. These soils were found to exist to a depth of 15 feet below the existing ground surface. Groundwater has been identified at a depth of approximately 130 feet below the surface. Surface water is a product of seasonal precipitation events only; there is no standing water in the proposed project area. These factors reduce the susceptibility of hydro-collapsing soils.

Physiography and Topography

The proposed project is located within the Antelope Valley portion of the Mojave Desert Geomorphic Province. The Antelope Valley is separated from the Sierra Nevada Mountains by the Garlock Fault Zone to the north and from the Transverse Ranges and coastal areas by the San Andreas Fault Zone to the southwest. The topography of the proposed project site consists of a broad, shallow basin characterized by a gently undulating ground surface with isolated buttes and mountain masses with low to moderate relief irregularly distributed across the desert floor. The average elevation of the proposed project site is approximately 2,500 feet above mean sea level (msl).

Geologic and Soil Units

The substrate beneath the proposed project is composed of more than 700 feet of unconsolidated Pleistocene and Holocene alluvium overlying consolidated sedimentary and crystalline basement rocks. The geologic conditions of the area are regional in nature. Unconsolidated sediments are more conducive to propagating seismic waves relative to sedimentary and crystalline basement

[63] California Department of Conservation, Division of Mines and Geology, 1994. *Fault Activity Map of California and Adjacent Areas With Locations and Ages of Recent Volcanic Eruptions*. Compiled and Interpreted by Charles W. Jennings.

[64] Wateridge Capital Group, LLC, 7 March 2002. *Preliminary Geotechnical Investigation and Geological Hazard Report, Hyundai/Kia Testing Facility, Kern County, California*. Contact: 221 Town Center West, Suite 106, Santa Maria, CA 93458. Prepared by David Jones Associates, 155 Montgomery Street, Suite 510, San Francisco CA 94104.

rocks. Sediment thickness and composition contributes to seismic ground shaking intensity during an earthquake.

The proposed project site is underlain by Recent Alluvium (Qal). This material is composed primarily of medium brown silty sand derived from the Tehachapi Mountains. Geotechnical borings performed specifically in the automotive test course facility area noted an increased silt and/or sand content; caliche was also noted in some of the borings.

Granitic rocks are exposed in hills south of the proposed project site. These hills also contribute material to Qal present locally surrounding each hill. Lager granitic blocks are buried beneath these alluvial deposits.

Three soil types are identified on the proposed project site. Rosamond-DeStazo series covers most of the Facility area; Garlock-Neuralia series underlies eastern portions of the project site; and Randsbury-Muroc series covers much of the southern portion of the project site (Figure 4.1.2.5-2, *Regional Fault Map*).

Hydrology, Shallow Groundwater and Flooding

Soil types present in the proposed project site have a low to moderate water capacity, resulting in minimal water retention. The *Kern County General Plan Eastern Section Map*[65] does not indicate any zones within the proposed project site that are designated potential risk of geological hazards due to shallow groundwater if the land is developed. In the proposed project site, groundwater is identified at a depth of approximately 130 feet below the surface of the proposed project site.66 Minimal surface or near surface water in the proposed project site diminishes the potential for seismic-related ground failure.

Seismicity

Plate tectonics, the movement of plates within the earth's crust, is experienced as an earthquake when there is a sudden release of energy along a fault line. The fault ruptures to accommodate this energy, propagating the energy throughout the land area surrounding the epicenter. Depending on the intensity of the earthquake, the propagation of energy creates strong ground motion and other potential seismic hazards such as surface fault rupture, ground failure (including liquefaction), and landslides. Ground motion or ground shaking intensity is described by the Modified Mercalli Intensity (MMI) Scale. Values in the MMI scale are dependent on several factors: earthquake size, type, depth, distance to fault, subsurface geologic conditions, and direction of motion.

[65] County of Kern Planning Department, 1994. [Formerly Department of Planning and Development Services.] General Plan: Land Use, Open Space and Conservation Element. Contact: 2700 "M," Bakersfield, CA 93301-2323.

[66] David Jones Associates. 2001. *Report of Geotechnical Feasibility*. Contact: 155 Montgomery Street, Suite 510, San Francisco, CA, 94104. Prepared for Wateridge Capital Corporation, LLC, 221 Town Center West, Suite 106, Santa Maria, CA 93458.

The proposed project site is not located within an Alquist-Priolo Special Studies Zone Map[67] or Seismic Hazard Zone Map.[68] The nearest Alquist-Priolo Earthquake Fault Zone is the Garlock Fault Zone which has segments that are classified as either active or potentially active. However the proposed project site is located more than 15 kilometers from the Garlock Fault, allowing less restrictive building requirements and decreased seismic hazard relative to areas in closer proximity to a Type A fault.

The California Building Code defines Type A sources as faults that are capable of a moment magnitude greater than 7.0 and a slip rate greater than 5 mm/year. The Garlock Fault is a Type A fault. The maximum credible earthquake along this fault has been estimated at a magnitude of 7.8. The County is entirely included within California Building Code Seismic Zone 4. California Building Code Seismic Zone 4 is the highest level hazard zone.

The two most relevant fault zones in the region that have demonstrated historic movement (during the past 200 years) are the San Andreas fault zone and the Kern Canyon-Breckenridge-White Wolf fault system. The northwest-trending San Andreas fault zone is approximately 34 miles southwest of the proposed project site. The Kern Canyon-Breckenridge-White Wolf fault system, trending roughly parallel to the Garlock Fault Zone, is approximately 29 miles northwest of the proposed project site. The Kern Canyon-Breckenridge-White Wolf fault system has also generated the nearest accumulation of magnitude (M) 5.5 or greater epicenters.[69] The 1952 M 7.5 Kern County earthquake resulted from a rupture along the White Wolf Fault.[70]

Additional important faults in the region with demonstrated historic movement include the Sierra Nevada fault zone and the Lockhart fault. Both faults are within 35 miles of the proposed project site. One unnamed potentially active (Quaternary) fault is present immediately south of the City.

The Muroc fault trends northwest and is approximately 1 mile northeast of the proposed project site. This fault has not demonstrated Holocene movement (during the past 11,000 years); therefore, it is not currently classified as active or potentially active.[71]

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[67] California Department of Conservation, California Geological Survey, 29 March 2002."Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of May 1, 1999." Available at: http://www.consrv.ca.gov/dmg/rghm/a-p/affected.htm.

[68] Ibid.

[69] United States Geological Survey, National Earthquake Information Center, 1992. Southern California Earthquakes. (By Susan Gower).

[70] Southern California Earthquake Data Center, 21 February 2002. "Kern County Earthquake." Available at: http://www.scecdc.scec.org/kerncoun.html.

[71] Ibid.

Surface Fault Rupture

There are no known faults defined as active or potentially active intersecting the proposed project area; therefore, the site is not subject to surface fault rupture.

Seismic Ground Shaking

The proposed project site is subject to moderate to intense seismic ground shaking from earthquakes generated in nearby fault zones.

Seismic-Related Ground Failure/Liquefaction

The proposed project site is not subject to seismic-related ground failure, including liquefaction.

Landslides

The proposed project site is not subject to seismic-related landslides.

Soil Erosion

The proposed project site is subject to mild soil erosion as a product of fugitive dust.

Stability of Geology and Soils

The proposed project site is subject to potentially unstable soils. Geotechnical testing performed within the proposed project site indicated that some soils have a mild to moderate potential to collapse with the addition of water. These soils were found to exist to a depth of 15 feet below the existing ground surface.

Expansive Soils

The proposed project site does not contain expansive soils.

Waste Water Disposal

The proposed project site includes soils capable of supporting a septic tank or alternative waste water disposal system.

4.1.2.6 Hazards and Hazardous Materials

The proposed project site is located entirely within the High Altitude Supersonic Aircraft Corridor used by Edwards Air Force Base.[72] A review of current applicable federal, state, and local

[72] City of California City Planning Department, 1993. *General Plan 2012*. Contact: 21000 Hacienda Boulevard, California City, CA 93505.

environmental regulatory databases was conducted in support of the Initial Study[73]and the *Phase I Environmental Site Assessment of the Proposed Automotive Test Course*[74]to ascertain whether any part of the proposed project site currently is affected by or could be affected by on-site or off-site unauthorized releases of hazardous materials. The review indicated that there were no current hazardous materials sites requiring further action within the boundaries of the proposed project. However, biological field surveys undertaken within the proposed project site identified the presence of potential unexploded ordnance. A site assessment was performed by representatives of Edwards Air Force Base Explosive Ordnance Disposal Unit on September 12, 2002. It was determined that all ordnance observed by the unit were "dummy" rounds used for targeting and contained no explosives.

4.1.2.7 Hydrology and Water Quality

The proposed project is located within the jurisdiction of the California Regional Water Quality Control Board, Lahontan Region.[75] Based on a review of existing available data for groundwater resources in the vicinity of the proposed project area,[76]existing domestic water sources are both groundwater extracted from local wells and imported water from the Antelope Valley East Kern Water Agency. A limited review of well records indicated that the groundwater table is approximately 130 feet below the ground surface in the vicinity of the proposed project site.[77] Storm water that is tributary to the proposed project site flows in a southeasterly direction through the site. The entire tributary area consists of vacant desert terrain with little undulation or visible streambed definition.[78] The elevation difference from the easternmost location of the tributary area to the westernmost location of the tributary area is 650 vertical feet through a total travel distance of 60,000 feet. Examination of the USGS 7.5-minute series Sanborn topographic quadrangle and aerial photos for the proposed project site identified colored lines indicating drainage locations.[7980] These "colored" drainages were identified as ephemeral drainages. Due to present conditions of the terrain in the proposed project area, these "minor ephemeral" drainage locations did change during storm

[73] City of California City, 4 April 2002a.

[74] Wateridge Capital Group, LLC, April 2002. *Phase I Environmental Site Assessment of the Automotive Test Course Project.* Contact: 221 Town Center West, Suite 106, Santa Maria, CA 93458. Prepared by Sapphos Environmental, Inc., 133 Martin Alley, Pasadena, CA 91105.

[75] California Regional Water Quality Control Board, Lahontan Region, 1995. *Water Quality Control Plan for the Lahontan Region; North and South Basins.* Contact: 2092 Lake Tahoe Blvd., South Lake Tahoe, CA 96150.

[76] Wateridge Capital Group, LLC, 2001. *Report of Geotechnical Feasibility*. Contact: 221 Town Center West, Suite 106, Santa Maria, CA 93458. Prepared by David Jones Associates, 155 Montgomery Street, Suite 510, San Francisco, CA 94104.

[77] Hyundai Corporation of America, 20 September 2002.

[78] Ibid.

[79] U.S. Geological Survey, 1973. USGS 7.5-Minute Series Sanborn, CA topographic quadrangle. Denver, CO.

[80] Roland Rothman, *Personal Communication*, 13 May 2002. Rothman Engineering.

water runoff events.[81] Therefore, examination of the USGS 7.5-minute series Sanborn topographic quadrangles for the proposed project site identified five main ephemeral drainages that are tributary to the site, labeled as Tributary 1 through 5 (Figure 4.1.2.7-1, *Proposed Automotive Test Course Project Site: Existing Drainage Conditions*).[8283] Examination of the drainage tributary areas shows that approximately 9,200 acres is tributary to the entire proposed project site boundary. Of the approximately 9,200 acres of tributary flow area that flow to the property boundary from the west, roughly 6,000 acres of tributary flow area currently pass through the proposed project site through three identified ephemeral drainages. The southernmost drainage would also include an additional 1,200 acres, which, although not directly impacting the site, would pass through the proposed undisturbed southeastern corner of the site and on the Cache Creek further downstream. The two remaining ephemeral streams pass to the north of the site. The northernmost stream and corresponding tributary area incorporates the southernmost reaches of flood zone "A" for Cache Creek, which lies to the north of the site (Figure 4.1.2.7-1).[84] Examination of National Flood Insurance Program Flood Insurance Rate Maps for Kern County, California[85]and conversation with both Kern County and City personnel have indicated that the site does not adversely impact Cache Creek or its identified 100-year flood zone limits.[86] The Corps has determined that it does not have jurisdiction over any of the desert washes within the proposed project area. [87]

Hyundai submitted an application to CDFG for a Streambed Alteration Agreement (SAA), pursuant to Section 1603 of the California Fish and Game Code, on September 19, 2002. A Final Addendum to the Notification to a Lake or Streambed Alteration was submitted to CDFG on April 4, 2003. This document identifies permanent impacts to seven of the 13 dry desert washes, as a result of cut and fill from the installation of riprap pads and/or culverts, that are subject to regulation under Section 1603.

100-Year Flood Zone

Of the two streams that pass to the north of the site, the northern-most stream and corresponding tributary area incorporates the southern-most reaches of flood zone "A" for Cache Creek, which lies to the north of the site. Examination of National Flood Insurance Program Flood Insurance Rate Maps for Kern County, California[88] and conversations with both County and City personnel have

[81] Ibid.

[82] Hyundai Corporation of America, 2002.

[83] U.S. Geological Survey, 1973.

[84] Hyundai Corporation of America, 2002.

[85] Federal Emergency Management Agency, 1986. *Flood Insurance Rate Map, Kern County, California; Panel 1625 of 2075 and 1600 of 2075*. Effective September 29, 1986.

[86] Hyundai Corporation of America, 2002.

[87] United States Army Corps of Engineers, 17 September 2002.

[88] Federal Emergency Management Agency, 1986.

indicated that the site does not adversely impact Cache Creek or its identified 100-year flood zone limits. The proposed site is not located in a 100-year flood hazard area and no structures associated with the proposed project would be placed such that they would impede or redirect flood flows.

The northern-most portion of the proposed automotive test course area would be within the projected 100-year flood zone for Cache Creek. No structures are proposed within the projected 100-year flood zone for Cache Creek that would impede or redirect flood flows.

Any road or structure constructed within the "existing high water mark" of the ephemeral streams would be constructed in such a manner as not to expose people to a significant risk of loss, injury or death involving flooding. This would be done in one of two ways: roads and/or structures would be constructed a minimum of 2 feet above the high water mark or where velocities are considered low enough to be safe, and Arizona crossings for roads would be employed.

4.1.2.8 Land Use and Planning

On April 22, 2003, the City annexed the proposed 4,340-acre automotive test facility site. The City amended the City's General Plan, and adopted a California City Zoning Ordinance for the Annexation Area that included the proposed project site. The proposed project site has a City General Plan Designation of Light Industrial and Research and is zoned M-1-Light Industrial District. This allows an automotive test course facility.

Property Ownership

The proposed project site consists of 4,340 acres of vacant land. On December 13, 2002, Hyundai purchased 2,880 acres from SF Pacific Properties, Inc. (Catellus Property). The remaining 1,460 acres consist of 203 separately owned parcels. These parcels are being acquired by the Redevelopment Agency of The City of California City (RDA) and will be transferred to Hyundai pursuant to the terms of the Owner's Participation Agreement (OPA) between Hyundai and the RDA. The RDA has acquired ownership of 9 parcels, 29 parcels are in escrow On July 1, 2003, the RDA adopted Resolutions of Necessity to exercise its powers of eminent domain to acquire the remaining parcels at fair market value. Hyundai anticipates that it will complete its acquisition of all parcels no later than September 15, 2003.

4.1.2.9 Noise

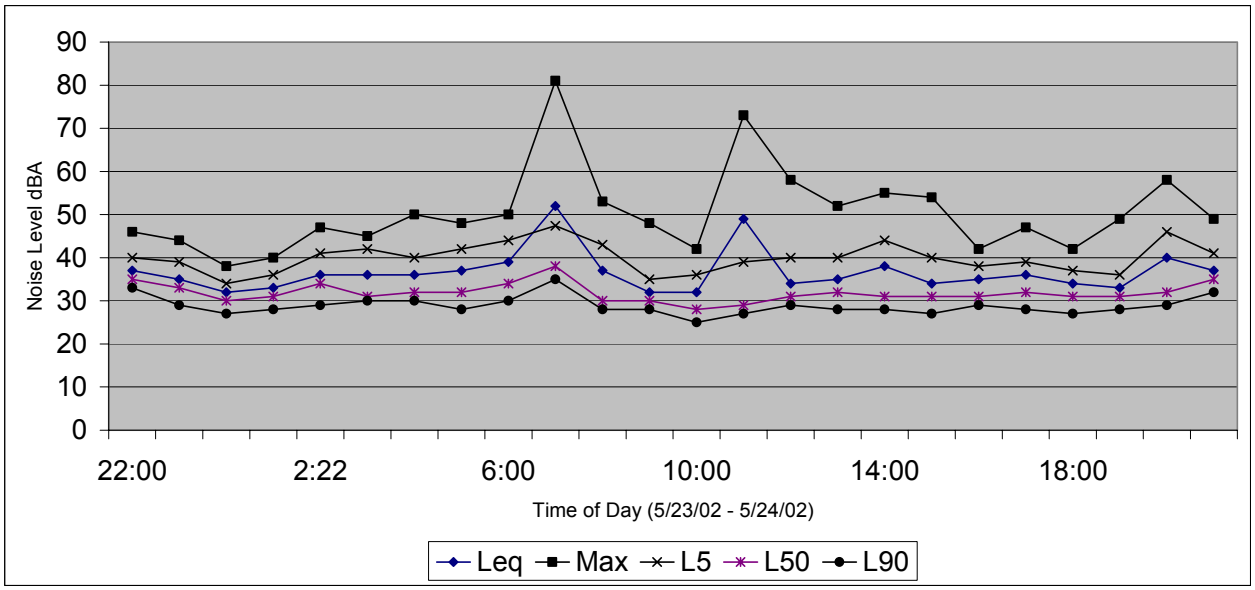
The existing noise environment in the vicinity of the project site is minimal, characterized by low ambient noise levels generated by vehicular traffic on nearby State Highway 58, occasional aircraft flyway, and natural sounds. The proposed project area is within the High Altitude Supersonic Corridor used by Edwards Air Force Base.

To characterize the existing noise environment at the proposed project site, ambient noise measurements were made during a typical weekday period between May 23 and 24, 2002, at four measurement sites. The sites are on the edge of the dirt road that starts at the AT&T Tower at approximately 1.0, 1.5, 2.0, and 3.0 miles north of State Highway 58. The measurements at miles

1.0, 2.0, and 3.0 were taken over one-hour periods and at the 1.5-mile locations over a 24-hour period (Figure 4.1.2.9-1, *Noise Monitoring Station Location*).

The results of the noise measurements are shown graphically in Table 4.1.2.9-1, *Existing Noise Levels*. The measurement results are presented in terms of the equivalent (L_{eq}), maximum (L_{max}), L_5, L_{50} and L_{90} noise levels. Measurements were made using an automated system placed inside a car with a cable to the microphone outside the car. The ambient L_{eq} and L_{max} levels peak at 7:00 a.m., 11:00 a.m., and 8:00 p.m.

TABLE 4.1.2.9-1
EXISTING NOISE LEVELS



4.1.2.10 Utilities and Service Systems

The development of the proposed Facility would require the construction of on-site wastewater conveyance and treatment, potable water conveyance, and storm water drainage facilities. A septic tank system to handle wastewater will be installed between the main building and the fuel storage area within the existing grading footprint. A leach field of approximately 5,500 square feet will be located approximately 300 feet north of the fuel storage area. Potable water supplies will be delivered by the City's proposed municipal water line extension project, described in Chapter 2, *Project Description*. Electricity will be provided by Southern California Edison from existing service lines.

4.2 PROPOSED COMPENSATION LAND

This description of the land proposed to be acquired as compensation lands is based on literature review; archive and records search; a review of the following USGS 7.5-minute topographic

quadrangle maps: Galileo Hill, Saltdale, California City North, and Cantil, the Desert Tortoise (Mojave Population) Recovery Plan;[89] and the 2003 Desert Tortoise Preserve Committee Management Plan, Desert Tortoise Natural Area & Adjacent Lands, Appendix E, *2003 Desert Tortoise Preserve Committee Management Plan, Desert Tortoise Natural Area & Adjacent Lands*.

4.2.1 Location

The proposed compensation land area is located within portions of the USGS 7.5-minute topographic quadrangle maps: Galileo Hill, Saltdale, California City North, and Cantil, and is north of the Randsburg/Mojave Road, east of Cache Creek, south of Koehn Lake, and west of Chrysler Road, in the general vicinity of the Rand Mountains, (Figure 4.2.1-1, *General Location of Proposed Mitigation Lands*). The proposed mitigation lands are sites north of the City of California City and east of the Desert Tortoise Natural Area.

4.2.2 Existing Conditions

4.2.2.1 Plant Communities

Mojave Creosote Bush Scrub

The Mojave creosote bush scrub plant community (Element Code 34100)[90] corresponds to the creosote bush series.[91] Mojave creosote bush scrub is the dominant plant in the Mojave Desert at elevations below 3,000 to 4,000 feet. Mojave creosote bush scrub is not a state-designated sensitive plant community. This plant community is normally characterized by shrubs of usually 0.5 to 3 meters in height and widely spaced with bare ground between plants. It occurs in areas of well-drained secondary soils on slopes, fans, and valleys. It is typically dominated by creosote *(Larrea tridentata)* and is characterized by burro-weed *(Ambrosia dumosa),* spiny senna (*Cassia armata),* Mormon tea*,* and burrobrush. Creosote bush scrub is described as being the "by far the most important and widespread desert vegetation type."[92]

4.2.2.2 Threatened and Endangered Species

Potentially suitable habitat for the desert tortoise and Mohave ground squirrel consists primarily of creosote bush scrub vegetation, but also succulent scrub, cheesebush scrub, blackbush scrub, hop-sage scrub, shadscale scrub, microphyll woodland, and Mojave saltbush-allscale scrub. Tortoises eat primarily annual forbs, but also perennials. They prefer surfaces covered with sand and fine gravel versus course gravel, pebbles, and desert pavement. Friable soil is important for digging burrows.

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[89] USFWS, 1994.

[90] Holland, 1986.

[91] Sawyer and Keeler-Wolf, 1995.

[92] USFWS, 1994.

The proposed compensation lands are located north of the City of California City and east of the Desert Tortoise Research and Natural Area (DTRNA) and will be situated away from State Highway 58 and other major highways that could result in tortoise or Mohave ground squirrel mortalities and fragmentation of tortoise and Mohave ground squirrel populations. As described in Appendix E, these lands include a broad range of biological resources, including Mohave creosote bush scrub habitat, which is known to support desert tortoise and Mohave ground squirrel populations. Surveys conducted in 2000 indicated the presence of desert tortoises and Mohave ground squirrel. A Property Analysis Record (PAR) recently conducted by the DTPC in an area adjacent to the proposed acquisition area also describes the presence of these species. (Appendix F, *Desert Tortoise Preserve Committee Property Analysis Record*). The compensation lands would further protect the core desert tortoise populations within the DTRNA by providing a larger buffer between the DTRNA and lands that are proposed for development or other uses not compatible with desert tortoise use or occupation. Overall, the value of the compensation lands will be greater than those that would be impacted by the proposed project due to the location of the compensation lands (adjacent to areas being managed for desert tortoise), and the isolation of the compensation lands from major highways and urban areas that reduce the suitability of lands to support desert tortoise populations.

Because these compensation lands will be managed for the benefit of desert tortoise and Mohave ground squirrel, their value to the species will be increased by the implementation of enhancement measures, which may include fencing, removal of garbage and debris and other measures. Accordingly, there will no adverse impact to the compensation lands from their acquisition by Hyundai and the City for the purpose of compensation for the proposed project's impacts to desert tortoise to Mohave ground squirrel.